

[54] **METHOD FOR THE FORMATION OF THIN HYDROPHILIC LAYERS ON THE SURFACE OF OBJECTS MADE FROM NON-HYDROPHILIC METHACRYLATE AND ACRYLATE POLYMERS**

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[58] **Field of Search** **623/6; 264/2.6, 1.7; 351/160 H; 427/2**

[56] **References Cited**

U.S. PATENT DOCUMENTS

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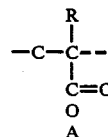
[57] **ABSTRACT**

Method for the formation of hydrophilic layers on the surface of objects made from polymeric esters and/or nitriles of acrylic acid and/or methacrylic acid by means of hydrolysis caused by strong acids at elevated temperature, where the solubility of polymer in warm acid is reduced by addition of a salt which alone does not react with the polymer, advantageously of a salt of the used acid. The thickness of the hydrophilic layer

may be controlled by changing the concentration of salt and the surface layer containing hydroxyl groups may be at the same time or subsequently thickened by treatment with a multifunctional primary or secondary alcohol, whereas the alcohol groups may be previously, at least in part, esterified with an acid which is weaker than is the acid used for hydrolysis.

By separation of the processing into at least two steps carried out under different conditions (time, pressure, concentration of components, temperature) it is possible to obtain the hydrophilic layer which is more swellable and softer on the surface than in the depth.

The object of the invention relates also to a novel intraocular lens or contact lens article having good optical geometry and mechanical properties comprising (a) a core of hydrophobic polymer of a nitrile, as ester of acrylic acid, or an ester of methacrylic acid (b) a relatively, thin surface layer on said article comprised of a water-swallowable, water-insoluble, inert, biocompatible hydrophilic polymer characterized by a recurring unit



wherein R is hydrogen or methyl, and wherein A is hydrogen, alkali metal, or a monovalent polyhydric group characterized by two or more primary and/or secondary hydroxyl group and (c) said hydrophilic layer and said hydrophobic core being chemically and integrally united to form said lens or intraocular lens.

2 Claims, No Drawings